

REMARKS

This Preliminary Amendment accompanies a request for continued examination (RCE).

Applicant asks that all claims be examined in view of the amendment to the claims.

Independent claims 1 and 2 have been amended to incorporate the features of claim 13 (which has been canceled) and to recite that "contaminants attached to side surfaces of the separation grooves are removed by ions reflected by the side surfaces." As explained in the specification for the pending application:

Residues of the etchant used in the etching step, dust in the air, and other contaminants are attached to the side surfaces of separation grooves 11, and these contaminants are also removed by plasma cleaning. Also, since separation grooves 11 are formed by etching, the side surfaces thereof are curved surfaces. Since ions that have entered from above are thus reflected by the side surfaces of separation grooves 11, a single ion collides with the side surfaces of a separation groove 11 several times. Since the effect of surface cleaning by ions is thus large at the side surfaces of separation grooves 11, the organic and inorganic contaminants attached to the side surfaces of separation grooves 11 become removed.

(Page 14, lines 4-15)

For example, as shown in FIG. 7, a conductive pattern 21 is mechanically supported by the sealing resin 28 in a semiconductor device. The side surface of the conductive pattern 21 adheres to the sealing resin 28 and, thus, both sides are bonded mechanically. In that example, the side surface of the conductive pattern 21 corresponds to the side surface of the separation groove 11. As shown in FIG. 5C, by removing the contaminants on the side surface of the separation groove 11 using plasma, the side surface of the conductive pattern 21 can be cleaned. Thus, the bond strength of the side surface of the conductive pattern 11 and the sealing resin 28 can be improved, which can prevent the conductive pattern 21 from peeling off the sealing resin 28.

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In a final action, the claims (prior to the current amendments) were rejected in view of one or more of the following: U.S. Patent No. 6,083,775 (Huang et al.); U.S. Patent No. 5,675,177 (Abys et al.); U.S. Patent No. 3,541,379 (Holden) and Applicant's admitted prior art.

Applicant reiterates the remarks in its reply to the office action of May 25, 2005.

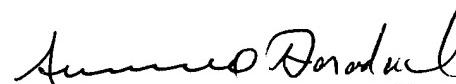
In addition, applicant submits that the pending claims should be allowable for the additional reasons discussed below.

In particular, the foregoing references do not disclose or suggest removing contaminants attached to side surfaces of the separation grooves by ions reflected by the side surfaces, as recited in the pending claims.

Enclosed is a check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 10/24/05

  
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